

NT-1 NEYER, TISEO & HINDO, Ltd.



30999 Ten Mile Road • Farmington Hills, Michigan 48024 (313) 471-0750

REPORT ON SOIL INVESTIGATION

PROJECT NO.: 56924

DESIGNATION: Proposed Dealership Facilities

Ten Mile & Haggerty Roads

LOCATION: Farmington Hills, Michigan

OWNER: Ford Motor Company

DATE: January 23, 1984



NEYER, TISEO & HINDO, Ltd.

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PF

KEITH M. SWAFFAR

CONSULTING

January 23, 1984 Project No. 56924

Mr. Donald Kilpela Dealership Real Estate Office Ford Motor Company 300 Renaissance Center Detroit, Michigan 48243

RE: Proposed Dealership Facilities 10 Mile and Haggerty Roads Farmington Hills, Michigan

Dear Mr. Kilpela:

This letter report presents additional data and recommendations regarding the development of the property at 10 Mile and Haggerty Road in Farmington Hills, Michigan. The purpose of this report is to further define the subsoil conditions on the site and to make recommendations concerning the foundation and site development requirements. The data and conclusions presented are believed to be adequate for final design. However, supplementary data may be required dependent on the final design concepts.

As presented in our preliminary report dated June 21, 1983, the site was originally used as a borrow pit for sand and gravel in the 1950's. During the 1960's, the pit was backfilled with domestic refuse. Test borings made in 1976 and test pits made on June 15, 1983 revealed a 33 foot maximum depth of garbage fill. The test pits also revealed that the fill was domestic refuse. At one-half of the test pits, the depth of the garbage fill exceeded the capacity of the backhoe.

In order to further evaluate the extent of the existing garbage fill and native soils, a total of 28 test borings, designated as Testing Boring Nos. 1, 2, 4, and 6 through 30, were drilled on the site at the locations shown on the Test Boring Location Plan, Plate 1. Test Boring Nos. 3 and 5 were not drilled during the field investigation due to inaccessible site conditions. The test borings were located by our field personnel utilizing staking from the survey by JCK and Associates. Ground surface elevations at the test boring locations were interpolated from the survey data.

During the period from November 29 to December 5, 1983, the test borings were drilled by Corbin Drilling Company under the fulltime supervision of our field engineer. The test borings were drilled to depths ranging from 5 to 40 feet below the ground surface. The boring was advanced by a truck-mounted rotary drilling rig utilizing a 4-inch diameter solid-stem auger and 6-inch diameter hollow-stem augers. Within each boring, no regular sampling was performed on the upper surface soils and rubbish fill except for visual examination of the material brought to the surface by the augers. When visual examination indicated that undisturbed native soils had been encountered, a soil sample was obtained by the Standard Penetration Test Method (ASTM D-1586) to determine the Standard Penetration Resistance The boring was terminated if the soil sample was of undisturbed native soil, or continued until the rubbish fill was completely penetrated.

Soil conditions encountered in the test borings have been evaluated and are presented in the form of Logs of Test Boring, Figures 1 to 28. In addition, the logs present information relating to sample data, Standard Penetration Resistance, water conditions observed, personnel involved and other data. For information and to aid in understanding the data presented on the logs, General Notes defining nomenclature used in soil descriptions and the Standard Penetration Test method are presented on Plate 2. The logs included with this letter have been prepared on the basis of laboratory classification and testing as well as field logs of the soils encountered.

The laboratory testing for this project consisted of the determination of the natural moisture content, in-place dry density, unconfined compressive strength, and grain-size determination of selected samples. The results of all laboratory tests are presented on the Tabulation of Test Data sheets, Figures 29 to 31.

On the basis of the information developed during the course of this investigation, it was possible to further define the extent of the rubbish fill. The lateral extent and approximate bottom elevations of the rubbish fill are presented on Plate 3, Bottom of Rubbish Fill. This same data is presented in a somewhat different format on Plate 4, Rubbish Fill Thickness. As shown on Plates 3 and 4, the lowest and thickest areas of rubbish fill are located at the northeast and southwest corners of the site and within the buried valley connecting these points.



The subsoils underlying the rubbish fill or outside the rubbish fill generally consist of stiff to very stiff silty clays or medium compact to compact sands, with varying amounts of silt and gravel. At most locations, the rubbish fill is covered with a relatively thin layer of soil consisting of medium sandy or silty clays with varying amounts of organic material and debris.

Groundwater level observations were made at each of the test boring locations during and following completion of the exploration operation. Groundwater was encountered in approximately half of the test borings at depths of 7 to 36 feet. At completion, the groundwater was observed at depths of 11 to 35 feet. This corresponds to Elevations 846 to 867.

It is our understanding that the present plans call for the construction of two dealership facilities at the locations shown on Plate 1. It is understood that the structural loads will be light. At this time, the finished floor grades have not been established. However, it is anticipated that the finish floor will be similiar to the existing road grades which will require lowering the existing site grade. The site will be paved with a bituminous pavement which will support auto and truck traffic.

Based on visual observations, the topsoil outside the rubbish fill area is moderately organic. Therefore the topsoil is not considered suitable for the support of building foundations or floor slabs, direct support of pavements or fill within the building area. However, the topsoil may be used for fill provided that all surface vegetation is removed and the topsoil is mixed with other fill. The native subsoils are considered suitable for the direct support of moderate loads and for use as compacted fill.

The rubbish fill is not considered suitable for support of building foundations or floor slabs. However, some of the rubbish fill may be left in place below paved areas provided that the criteria outlined later are followed.

The soils which are presently in place above the rubbish fill are considered suitable for the support of pavements provided that the criteria outlined later are followed. Those soils which are free of organic material, debris and rubbish may be used as compacted fill within the building area. Those soils which contain trace amounts of organic material and non-decomposable rubble may be re-used as fill over the rubbish in future paved areas.



Development of this site will require special construction methods to deal with the existing garbage fill. Consideration has been given to complete removal of all garbage from the site and replacement with compacted fill. The cost of this procedure is believed to be prohibitive for the type of development comtemplated. Consideration has also been given to the support of the proposed structures on piles driven through the garbage and into the firm underlying soils. Because of the organic nature of the garbage fill, it would be necessary to install a methane collection and control system below the proposed building. The cost of this system, and the potential for problems with the methane collection system, make this procedure undesirable.

It is recommended that the proposed buildings be supported on compacted fill placed after removal of all existing garbage fill from within the limits of the proposed buildings and a strip 20 feet wide outside of the buildings. If this procedure is used, there would be no need for a methane collection system and special building foundations (e.g., piles) would not be required. The cost of this operation would be considerably less than the cost of the total removal of garbage fill. If site grades are to be lowered to near the level of the adjacent roads, the available cut material should be approximately equal to the fill required.

Site work operations should commence with removal of surface topsoil and vegetation. The natural soils covering the garbage fill may be stripped and stockpiled for future use or they may be wasted with the garbage fill, depending upon the excavation method selected by the contractor. Throughout the entire site to be developed, the existing garbage fill should be removed to a level of four feet below proposed top of pavement.

The garbage fill should be removed in its entirety from the area of the proposed buildings and for a distance of 20 feet outside of the proposed building lines in all directions. This will require excavations as deep as 35 feet below presently existing grade.

The excavations made for the proposed buildings should be back-filled with engineered fill to finished grade. The native soils on the site may be used as material for the engineered fill. Most of the available cut soils are to be found on the westerly edge of the site and consist of silty clay materials. In order to achieve proper compaction of these materials, it will be necessary to control the moisture content during placement and compaction.



Fill should be placed in horizontal lifts with each lift being properly compacted prior to placement of subsequent lifts. All fill within the limits of the building excavations should be compacted to not less than 95 percent of the maximum dry density as determined by ASTM D-1557 (Modified Proctor Compaction Test).

Within the proposed parking areas, engineered fill should be placed above the garbage fill remaing after stripping to 4 feet below finished grade. On-site native soils may also be used for this fill. Compaction of fill in the parking areas should also be to not less than 95 of the maximum dry density as determined by ASTM D-1557.

All garbage fill removed during the above-mentioned operations should be removed from the site and disposed of at an approved landfill. In addition, any groundwater contaminated by contact with the garbage fill should be pumped to a sanitary sewer rather than into the storm water system. During site work operations, it will also be necessary to control noxious odors generated by the decomposing garbage. This can be accomplished by working relatively small areas at any one time, by covering exposed garbage surfaces with visqueen, or by other methods selected by the contractor.

It is recommended that consideration be given to accomplishing the site preparation work under a separate contract, rather than including this work in the building contract. The site preparation contractor should be made responsible for obtaining all state and local permits, for controlling odors and water discharge during construction, and for selection of construction procedures appropriate to the project.

Installation of water and sewer lines may be part of the site work package or the building package. Where these utilities encounter the existing garbage fill, the garbage should be removed for a minimum depth of one foot below the proposed utility and this space filled with crushed stone or crushed concrete bedding.

After the above outlined earthwork operations are performed in the building area, it is recommended that the proposed building be supported on shallow spread and/or strip footings bearing on undisturbed native soils or on compacted fill. Exterior footings should be founded a minimum of 3.5 feet below exterior finished grade for protection against frost penetration. Interior footings not subject to frost penetration may be founded at shallower depths.



An allowable net bearing pressure of 3,000 pounds per square foot is recommended for the design of footings. However, strip footings should not be less than 12 inches in width and isolated footings should have a least dimension of 18 inches, regardless of the resultant bearing pressure.

If the recommendations outlined in this report are adhered to, total and differential settlements for the completed structure should be within tolerable limits for the type of building proposed. It is recommended that all strip footings be suitably reinforced to minimize the effects of small differential settlements associated with local variations in subsoil conditions.

As previously mentioned, the groundwater level was observed between Elevations 846 and 867. It is expected that excavations for rubbish fill removal will extend below the observed water levels. It is expected that a considerable quantity of water will be encountered. However, it is anticipated that the water can be handled by pumping from properly constructed sumps during the excavation and backfilling for the building support fill. The water pumped from these excavations should be disposed of in a sanitary sewer rather than pumped into the storm drainage system.

If the earthwork operations are performed as recommended in this report, the on-site soils should be suitable for the support of floor slabs and pavements. In those areas where garbage fill is allowed to remain below the pavement, it is recommended that a system of gas vents be installed to prevent the buildup of methane below the pavement. The system should include vent pipes driven into the garbage fill and extending at least 8 feet above the surface of the parking lot.

No resistivity tests were performed to determine the corrosion potential of the on-site soils. It is recommended that the corrosion potential of the soils be determined after the recommended earthwork is completed and the fill below the proposed structures is in place.

The purchase of an abandoned landfill may carry certain legal liabilities with regard to subsurface conditions. If, at some future date, the landfill is deemed to be the source of ground-water pollution or some other hazard, the owner of the property at that time may be required to undertake cleanup operations. It is therefore recommended that the potential liability of Ford Motor Company be evaluated by legal counsel prior to finalization of the purchase.



The evaluations and recommendations presented in this letter have been formulated on the basis of reported or assumed data relating to the location, type and finished grades for the proposed facilities. Any significant change in this data in the final design plans should be brought to our attention for review and evaluations with respect to the prevailing subsoil conditions.

It is considered essential that a qualified geotechnical engineer be retained to provide soil engineering services during the site preparation and earthwork phases of the proposed project. This is to observe compliance with the design concepts, specifications and recommendations. Also, this allows design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction.

If you have any questions concerning this letter or the enclosed data, please do not hesitate to contact us. We appricate this opportunity to have been of service to you.

Very truly yours,

NEYER, TISEO & HINDO, LTD.

J. Michael Smalley, P.E.

Jerome C. Neyer, P.E.

JMS/JCN/jf Enclosures



APPENDIX A

TEST BORING LOCATION PLAN.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	PLATE	1.	
GENERAL NOTES	•	•	•	•	•	•	•	•-	•	•	•	•	•	•	•	•	•	•	•	•	•	•	PLATE	2	
BOTTOM OF FILL CONTOURS .	•	•	•	•.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	. •	PLATE	3	
THICKNESS OF FILL CONTOURS	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	PLATE	4	
LOG OF TEST BORING NOS. 1,2	. , 4	1,6	5–3	30	•	•	•	• .	•	•	•	•	•	•	•	•	•	•	•	•	•	•	Figure	s 1 - 2	28 -
שא בינון איידר או רובי ייביביי בינוי																						٠.	Figuro	~ 20	זכ

NEYER, TISEO & HINDO, LTD.

GENERAL NOTES

TERMINOLOGY

Unless otherwise noted, all terms utilized herein refer to the Standard Definitions presented in ASTM D 653.

PARTICLE SIZES

Boulders - Greater than 12 inches (305mm)

Cobbles - 3 inches (76.2mm) to 12 inches (305mm)

Gravel - Course - No. 4 - 3/16 inches (4.75mm) to 3/4 inches (19.05mm)

Sand Course - No. 10 (2.00mm) to No. 4 (4.75mm)

Medium - No. 40 (0.425mm) to No. 40 (0.425mm)

No. 200 (0.074mm) to No. 40 (0.425mm)

Silt - 0:005mm to 0:074mm
Clay: - Less than 0:005mm

COHESIONLESS SOILS

Density	Relative	Approximate
un. Classification	Density %	Range of (N)
Very Loose	0-15	0-4
Loose	16-35	5-10
tituents Medium Compact .	36-65	11-30
12% Compact	66-85	31-50
o 23% Very Compact	86-100	Over 50
the Standard Penetrati	ion Resistance (N); mo	
	Classification Very Loose Loose Loose Medium Compact Compact Very Compact Very Compact Relative Density of Colthe Standard Penetrat	Classification Density Well Loose 0-15 Loose 16-35 Littuents Medium Compact 36-65 weight) Compact 66-85 Very Compact 86-100:

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modifier; i.e., silty clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohensionless soils; i.e., silty clay, trace of sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Appromixate Range of (N)
Very Soft	Below 500	0-2
Soft	500-1000	3:4
Medium	1000-2000	5-8
Stiff	2000-4000	9-15
Very Stiff	4000-8000	16 -30
Hard	8000-16000	31-50
Very Hard	Over 16000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

SAMPLE DESIGNATIONS

AS - Auger Sample - Directly from auger flight.

BS - Miscellaneous Samples - Bottle or Bag.

S - Split Spoon Sample with Liner Insert - ASTM D 1586

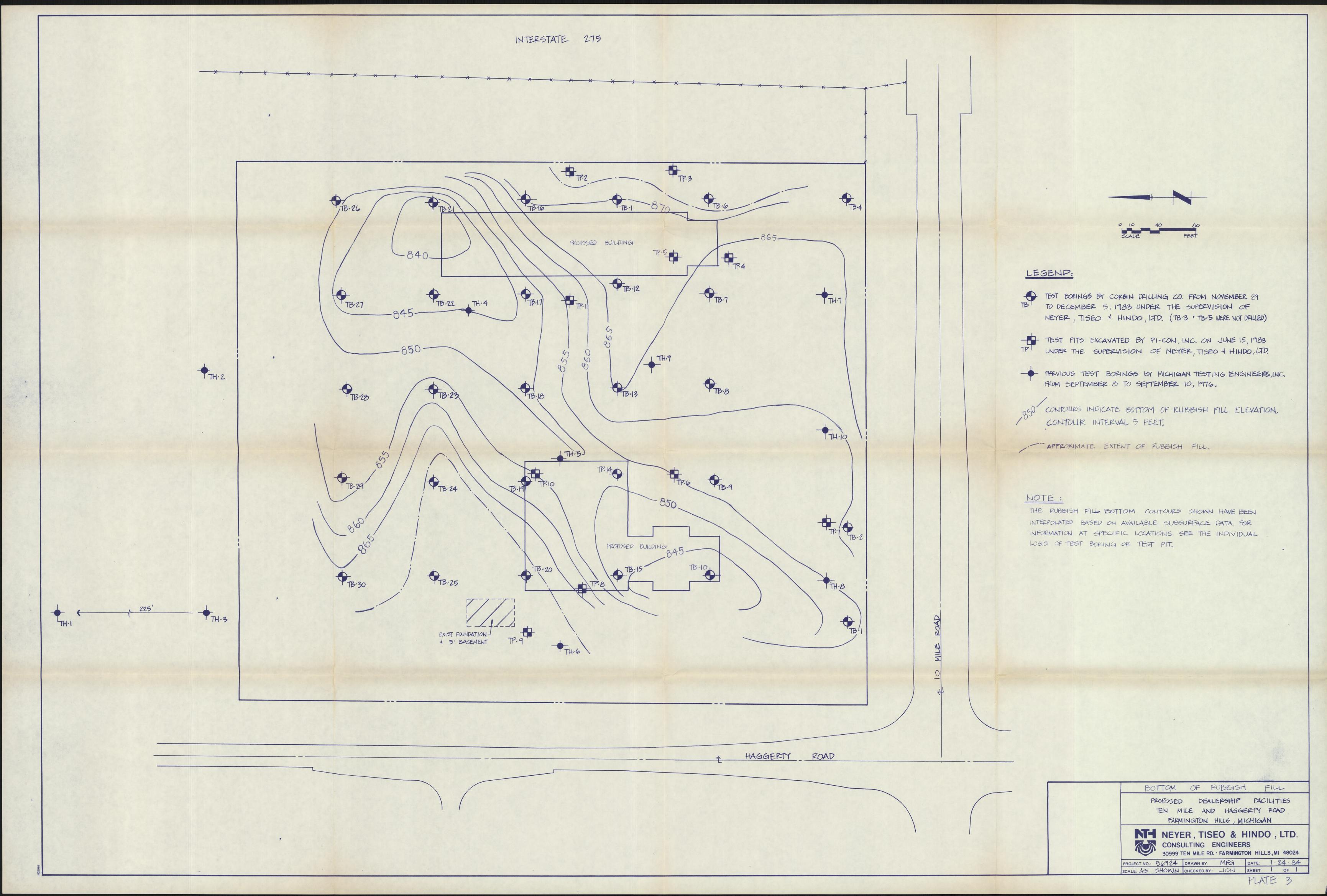
LS - Liner Sample S with liner insert 3 inches in length.

ST - Shelby Tube Sample - 3 inch diameter unless otherwise noted.

PS - Piston Sample - 3 inch diameter unless otherwise noted.

RC - Rock Core - NX-core unless otherwise noted.

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0" outside-diameter, 1-3/8" inside-diameter split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).



	LO	G OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	TA	
	N	SSIFICATIONS BY: IEYER, TISEO & HINDO, LTD. DUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	RES	ETRATION ISTANCE *
	ניים:	869.2		·	1		10 2	0 30 40 5
_65 _		FILL: Medium Brown SILTY AND SANDY CLAY with Trace of Gravel.						
_05 _	图-	<i>\(\oldsymbol{\o</i>	<u>.</u>					
:60 —		FILL: Medium Brown SILTY CLAY with Trace of Organic and Garbage		·				
,00 -	14 -	10:	VISUAL	CLASS	IFICATION	ONLY		
	0~							
355 _	27	RUBBISH FILL.						
	8 7 8 P			·		,		
<u>0</u> 350 _	0 0	Very Stiff Brown SILTY CLAY with Trace of Gravel.	LS-1	849.2	17.8	114.0	00 10	
	<u> </u>		0				21 + 18	+ 119 1
845		NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Groundwater encountered at 7 feet during drilling. 3. Boring backfilled with excavated material.						
	7							

BORING STARTED:

12-5-83

BORING COMPLETED:

12-5-83

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING. WITH __ 0 FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 FF FALL

PROJECT No.

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

PROPOSED DEALERSHIP FACILITIES

TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

LOG OF TEST BORING NUMBER

12-16-83 DATE:

APPROVED BY: \ M 56924

FIGURE NO.

	Lo	G OF SUB	SURFAC	E PROFI	LE		so	IL SAMI	PLE DA	TA		
	N	SSIFICATIONS IEYER, TI DUND SURFACE	SEO & HI	NDO, LT	D.	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	DENSITY RESISTANCE		
	1341 -	869.0) 30 40 5 	
865_		FILL: Med- CLAY with Organic N	n Trace of		ILTY		·	. •	·			
	 					VISUA	L CLAS	 	ONLY			
					7.0	1		·				
860_		Hard Brown Sand and		with Trace			050	15.0	115 5			
	M.				10.0	LS-1	859.0	15.2	115.5	15-25	3b }	
		NOTES:										
855 <u></u>		2. Boring3. Boring	er solid-st	em auger. pletion. with								
: 									-			
,					٠.							
								·				
	TOTA	L DEPTH:	10.0' 12-5-83		·							

BORING STARTED: 12-5-83
BORING COMPLETED: 12-5-83
INSPECTOR: K. Deddeh

DRILLER: CONTRACTOR:

Corbin Drilling Co.

Bob Lemke

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH

O.D. SOIL SAMPLER 12 INCHES, USING 140

POUND WEIGHT WITH 30 INCH FREE FALL.

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						-										_				_				

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 2

PROPOSED DEALERSHIP FACILITIES
TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

PROJECT NO. 56924 FIGURE NO. 2

	LOG OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	TA
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION: 869.1	SAMPLE NUMBER	ELEV.	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
865_	FILL: Medium Brown SILTY AND SANDY CLAY with Trace of Gravel. Very Stiff Brown SANDY AND SILTY CLAY. 4.6	VISUAL	CLASSI 864.1	FICATION O		18-17-14
860_	with Trace of Gravel. NOTES: 1. Boring advanced with 4-inch					
	diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
					·	
	TOTAL DEPTH: 5.0' BORING STARTED: 12-5-83 BORING COMPLETED: 12-5-83					

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

* PENETRATION RESISTANCE:

number of blows required to drive 2 inch o.d. soil sampler 12 inches, using 140 pound weight with 30 inch free fall.

NEYER, TIS	EO & HI	NDO, LTD.
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CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 4

PROPOSED DEALERSHIP FACILITIES

TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

PROJECT NO. 56924 FIGURE NO. 3

L	OG OF SUBSURFACE PROFILE		so	IL SAMI	PLE DA	TA			
	ASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. ROUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)				
T/P	FILL: Medium Brown SILTY CLAY with Traces of Gravel and Sand.	,				10 20 30 40			
	FILL: Medium Brown SILTY CLAY with Traces of Organic Matter, Gravel and Sand.	VISUA	L CLAS	SIFICATION	ONLY				
	Very Stiff Brown SILTY CLAY with Traces of Gravel and Sand.	LS-1	866.2	13.8	122.0	24-17-25			
	NOTES:								
	 Boring advanced with 4-inch diameter solid-stem auger. Boring dry at completion. Boring backfilled with excavated material. 								
				1					
	AL DEPTH: 8.0' HING STARTED: 12-5-83								

BORING COMPLETED:

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH __ 0 FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER	, TISEO	& HINDO,	LTD.
. с	ONSULTIN	G ENGINEERS	

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN

APPROVED BY: DATE: 12-16-83 PROJECT No. 56924 FIGURE NO.

	LOG OF SUBSURFACE PROFILE		so	IL SAMI	PLE DA	TA
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION: 876,6	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
875 _	FILL: Medium Brown SANDY AND SILTY CLAY with Traces of Gravel.	2				
	ສ ກ RUBBISH FILL.	·				
870_	φ ₀ που	VISUA	L CLAS	SIFICATION	ONLY	
865_	FILL: Medium Brown SILTY CLAY with Traces of Organic Matter, Gravel And Sand.	P		'.		
뿐 860_	Very Stiff Brown SILTY CLAY with Traces of Gravel and Sand.	o LS-1	865.6	14.1	117.9	15-21-26
5 855—	NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
	excavated material.					
	TOTAL DEPTH: 17.0					

12-5-83 BORING STARTED:

BORING COMPLETED: 12-5-83

INSPECTOR: DRILLER:

K. Deddeh Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ____ FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POLIND WEIGHT WITH 30 INCH FREE FALL.

NEYER, TISEO & HINDO, LTD. CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN

DATE: 12-16-83 APPROVED BY: 56924 PROJECT NO. FIGURE NO.

	LOG OF SUBS	LE	E SOIL SAMPLE DATA							
. ·	GROUND SURFACE E	EO & HINDO, LT	D.	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATI RESISTANO	E *	
		Brown FINE SAND wit Clay and Gravel.	•					10 20 30	10 30	
375 _	FILL: Mixed	Rubbish and Soil.	2.5 3.5							
870					,					
	RUBBISH FILL	•		VISU	AL CLAS	SIFICATIO	N ONLY			
	(C)	•	·	<u> </u>			,			
J65 <u> </u>										
Ī.	(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)					·				
· <u>-a</u> .360 _	Very Stiff G	Gray SILTY CLAY with	17.5							
FY.	Traces of	Gravel and Sand.	20.0	LS-1	853.4	14.9	119.8	13-14-15		
355	diameter 2. Groundwa feet dur	dvanced with 4-inch solid-stem auger. ter encountered at ling drilling. ackfilled with excav								
	TOTAL DEPTH: BORING STARTED: BORING COMPLETED:	20.0' 12-5-83 12-5-83	•							
	INSPECTOR:	V Doddob			YER,	TISEO	BHIN	DO, LTD).	

POUND WEIGHT WITH 30 INCH FREE FALL.

	& HINDO, LTD.
LOG OF TEST BOR	ING NUMBER _8_
TEN MILE & HAG	GERTY ROAD
FARMINGTON HILL	S, MICHIGAN
APPROVED BY: OMS	DATE: 12-16-83
PROJECT No. 56924	PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN DATE: 12-16-83

	LOG OF SUBSURFACE PROFILE	<u></u>	S.O.	IL SAM		Т А
	CLASSIFICATIONS BY:	ļ		NATURAL		
	NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE CONTENT	DRY	PENETRATION RESISTANCE *
	GROUND SURFACE ELEVATION:	NUMBER	(FEET)	(PERCENT)	(PCF)	
	876.8	<u></u>	' 	<u> </u>	' <u>C</u>	<u>10 20 30 40 5</u> 0
875_	FILL: Medium Brown SANDY AND SILTY CLAY.					
	8					
870_						
	RUBBISH FILL.					
	WORRISH FILL.		<u> </u>			
865		VISUA	L CLAS	 SIFICATION	ONLY	
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4 860_						
	19.			· .		
×	Medium Gray SILTY CLAY with Traces	`[
855	of Gravel and Sand.					
0	Very Stiff Gray SILTY CLAY with	9				
	Tunese of Chayol and Sand	101	851.8	13.9	124.2	18-13-17
٠	11-	LS-1	031.0	13.3	127.2	
850_	NOTES:					
	1. Boring advanced with 4-inch diameter solid-stem auger.		•		·	
	2. Groundwater encountered at 15					
	feet during drilling. 3. Boring backfilled with excavate	d				
	material.					
		1				
	TOTAL DEPTH: 25.0'	L				
	BORING STARTED: 12-5-83					· .
	BORING COMPLETED: 12-5-83 INSPECTOR: K. Deddeh					
	DRILLER: K. Deagen Bob Lemke	NE		TISEO		DO, LTD.
	CONTRACTOR: Corbin Drilling Co.	LC		TEST BOR		
	WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING		PROPOSI	ED DEALERS	HIP FACI	LITIES
	WITH FEET OF CASING IN PLACE.			MILE & HA		. 1
	* PENETRATION RESISTANCE:			INGTON HIL		
	o.b. soil sampler 12 inches, using 140	APPROVE		9m8	DATE: 1	2-16-83
	POUND WEIGHT WITH 30 INCH FREE FALL.	PROJECT	No.	56924	FIGURE N	o. 7

	·		r				
	L	OG OF SUBSURFACE PROFILE		s o	IL SAM	PLE DA	TA
		ASSIFICATIONS BY:			NATURAL		
		IEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION *
	GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	RESISTANCE
	ļ	875.3		ļ .	(PERCENT)	(PCF)	10 20 30 40 50
875 _	1011	FILL: Medium Brown SILTY CLAY with				u	-
		Traces of Sand and Gravel.	!		į ·		
	9	CTTAGES OF BANK AND AND AND TO					
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•	9	RUBBISH FILL.				1	
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	ا که ۲	25,	S-1	840.3	10.1		
840_	-111	Stiff Chay SILTY CLAY with Traces		1	 		
	$\mathbf{\Pi}$	of Gravel.	,				1
٠.	1.12	Stiff Brown SILTY CLAY with Traces 30.	10.7	837.3	18.4	114.4	
•	µ 11.	of Gravel and Sand.	<u> pL3-1</u>	037.3	10.7		
		Lot diates and bands			ļ	1	
835_		NOTES:	· ·			1	
000_	7	1. Boring advanced with 4-inch	ļ	ļ	· ·	l .	
		diameter solid-stem auger.	1		ł		
		2. Groundwater encountered at 22	1	1			
	1	feet during drilling.			[] .	
	1	3. Boring backfilled with excavated	1		Į	ŀ	
	1	material.	1				
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		20.01	L	<u> </u>	<u> </u>		
	тот	AL DEPTH: 38.0'					
	BOR	ING STARTED: 12-5-83			٠		
	BCR	ING COMPLETED: 12-5-83					
	-	4 6 41 1					

K. Deddeh

Bob Lemke Corbin Drilling Co.

CONTRACTOR: WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ___ O __ FEET OF CASING IN PLACE.

*PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE _ 2_INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 10

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN APPROVED BY: PROJECT No.

DATE: 12-16-83

FIGURE No.

	LOG OF SUBSURFACE PROFILE		so	IL SAMI	PLE DA	ТА
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
875 -	875.6 FILL: Medium Brown SILTY CLAY with Trace of Gravel.		·	·	() 10 20 30 40 50
870_	FILL: Medium to Stiff Brown SILTY CLAY with Traces of Gravel and 5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.	- I.S-1	870.6	17.1	112.7	4-6-8
	Sand. FILL: Medium to Stiff Brown 7.5 SILTY CLAY with Trace of Organid Matter.	-		16.8	118.0	7 10 1/2
865_	Very Stiff Brown SILTY CLAY with Traces of Gravel and Sand.	o LS-2	865.6		110.0	7-10-13
	NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
¥.						
			·	·		
				·		
					,	
	TOTAL DEPTH: 10.0' BORING STARTED: 12-2-83 BORING COMPLETED: 12-2-83					
	INSPECTOR: K. Deddeh	NE	YER,	TISEO	& HIN	DO, LTD.

Corbin Drilling Co. CONTRACTOR; WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ___ 0 __ FEET OF CASING IN PLACE. * PENETRATION RESISTANCE:

DRILLER:

Bob Lemke

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH 30 INCH FREE FALL.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

DATE: 12-16-83 APPROVED BY: PROJECT No. FIGURE NO. 56924

	Con an auraumentae promise	, .				
	LOG OF SUBSURFACE PROFILE		50	IL SAMI	PLE DA	TA
• • •	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
	880.4	 				10_20_30_40_50
880 -	FILL: Medium Brown SILTY CLAY with Trace of Organic Matter.	_1	·			
875_	O DUDDISH FILL		,			
	RUBBISH FILL.	VISU	L CLAS	SIFICATION	ONLY	
870_	Medium Dark Brown SANDY AND SILTY	Q .				
_	CLAY with Trace of Organic Matter Medium Compact Grayish Brown					
<u> </u>	SILT. 14. Very Compact Brown FINE SAND 14. With Trace of Gravel, Silt 14. Very Compact Brown FINE SAND 15. g LS-1	865.4	11.0	132.3	30-41-42	
##AT	NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Groundwater encountered at 14 feet during drilling. 3. Boring backfilled with excavate material.					
	TOTAL DEPTH: 15.0' BORING STARTED: 12-2-83 BORING COMPLETED: 12-2-83 INSPECTOR: K. Deddeh DRILLER: Bob Lemke CONTRACTOR: Corbin Drilling Co. WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH FEET OF CASING IN PLACE. * PENETRATION RESISTANCE:		PROPOSI	TISEO DISULTING TEST BOR ED DEALERS MILE & HAG	E ENGINE ING NUM HIP FACI GERTY ROA	BER 12 LITIES AD
	NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140	APPROVE		77 -277	DATE:	12-16-83
	POUND WEIGHT WITH 30 INCH FREE FALL.	PROJECT	No.	//	FIGURE N	o. 10

	LOG OF SUBSURFACE PROFILE		so	IL SAMI	PLE DA	TA
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION: 881.5	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
880_	FILL: Medium Brown SILTY AND SANDY CLAY with Traces of Gravel and Organic Matter.	o				
875 _	の の RUBBISH FILL.				·	
870_	10 15 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0	VISUA	L CLAS	SIFICATION	ONLY	
¥ 865_	FILL: Medium Brown SILTY CLAY with Trace of Organic Matter. Stiff Brown SILTY CLAY with Traces of Clay.	Ω				
860_	Very Stiff Gray SILTY CLAY with 20. Traces of Gravel and Sand. NOTES:	<u>∪ LS-1</u>	861.5	13.6	122.5	111-22-22
	 Boring advanced with 4-inch diameter solid-stem auger. Boring dry at completion. Boring backfilled with excavated material. 					
	TOTAL DEPTH: 20.0' BORING STARTED: 12-1-83					

BORING STARTED:

BORING COMPLETED:

12-1-83

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING __ FEET OF CASING IN PLACE.

*	PEN	ETR	ATIO	N RES	ISTAI	NCE:
---	-----	-----	------	-------	-------	------

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140

30

APPROVED BY: PROJECT NO.

DATE: 12-16-83 11

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

56924

FIGURE NO.

	LOG OF SUB	SURFACE PROFILE		s o	IL SAM	PLE D	ATA			,
	CLASSIFICATIONS				NATURAL					#
	GROUND SURFACE	SEO & HINDO, LTD.	SAMPLE	(FEET)	MOISTURE	DRY	PENE		ATIO	
	•	ELEVATION:		(FEE1)	(PERCENT)	(PCF)				
	881.4	LIM PROUS CILTY AND SANDY	1.4	<u></u>	1 LINGENTY	1 (1 (1)	D 10 2	'P -	<u> 30 4</u>	<u>.9 5</u> 1
880 _	FILL: Medi	um Brown SILTY AND SANDY Traces of Gravel and 2.0			Ì		[]	11		
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950 -		Stiff Brown SANDY CLAY		· .						11
	with irac	es of Gravel.	1	l	İ					
^	Compact Bro	wn Medium Sand with 35.0	'	846.4	11.7	127.6	9-7-2	6	- -	
<u>-</u>	Traces of	own Medium Sand with 35.0 Gravel and Sand (wet).	9	 	 	1	++++	++	+	++
845 -	-						1111			$ \cdot $
	NOTES:	•					$\ \cdot\ _{L^{2}}$		11	
		advanced with 4-inch	1				1111	11		
		er solid-stem and 6 hollow	1.		İ					
	stem a	relocated 4 times to avoid	d		ļ	1				Ш
	obstru	ction at 4, 15 and 20 feet].				1111			
• •	depth.		1.				1111			
		water encountered at 35 uring drilling.					$\Pi\Pi$] [
		backfilled with excavated	1	•			1111			
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				1.]].
	 Total Depth:	35.0'		<u> </u>	!		1.1.1.1	ДД,	ш.	<u>_</u>
	BORING STARTED:	12-2-83								
	BORING COMPLETED	12-2-83					<u> </u>			
	INSPECTOR:	K. Deddeh	NE'	YER.	TISEO 8	HINE	O. I	TI	D.	
	DRILLER:	Bob Lemke		со	NSULTING	ENGINEE	RS			
	CONTRACTOR:	Corbin Drilling Co.	L	OG OF	TEST BOF	RING NUN	1BER	14	1	
	WATER LEVE	L IN HOLE AT INDICATED				01170 =				
				PROPOS	ED DEALER	SHIP FAC	ILITIE	۵.		
	•	AFTER COMPLETION OF BORING	i							
	WITH OFEET	OF CASING IN PLACE.		TEN	MILE & HA	GGERTY R	OAD			
	WITH 0 FEET *PENETRATION	OF CASING IN PLACE. RESISTANCE:								
	WITH 0 FEET *PENETRATION NUMBER OF BLOWS I	OF CASING IN PLACE.	Approve	FARMI	MILE & HA	LS, MICH		.83 		

FIGURE No.

POUND WEIGHT WITH 30 INCH FREE FALL.

													
	- 1	1.0	OG OF SUBS	URFACE	PROFILE		so	IL SAM	PLE D	ΑТА			
			ASSIFICATIONS B		· · · · · · · · · · · · · · · · · · ·		ſ 	NATURAL	Г 	Γ			
			NEYER, TIS		מדו סמו	SAMPLE	ELEV.	MOISTURE	DRY	DEN	ETB	ATIO	 ₩
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		GR	OUND SURFACE E	LEVATION;	İ	INOM BER	(REEI)		DENSITY	RE:	9151	ANCI	-
			880.8			ļ	l 	(PERCENT)	(PCF)	10.	20.	30_4	Q 50
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			Traces of	Organic Mat	tter. 2.0	:					-	- 1 1	
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		<u> </u>	-with Trace	s of Grave	a <u>nd Stones</u>	·		 		НН	+1		+++
			NOTES:]		ļ.				
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		TOT	AL DEPTH:	37.0									
		BOR	ING STARTED:	12-2-83							•		
100		BCR	ING COMPLETED:	12-2-83						•			
			PECTOR:	K. Deddeh		NE	/ER 1	riseo e	t HINIT) (T		
			LLER:	Bob Lemke		1 .45		NSULTING			– 1	٠.	
			TRACTOR:	Corbin Dri	illing Co.	1.0		TEST BOR				5	
					_			LUI BUN	THO NUN	*DEK		<u>. </u>	
			WATER LEVEL				PROPOSE	D DEALERS	HIP FACT	ITTE	S		
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		WIT		OF CASING IN			TEN N	TILE & HAG	GERTY RO	AD			ļ
			ENETRATION R				FARMIN	IGTON HILL	S. MICHT	GAN			1
			BER OF BLOWS RI			A ====		7000					
		0.0	. SOIL SAMPLER_	<u>12</u> inches	, USING <u>1.40</u>	APPROVE	D BY:	14111	DATE:]	<u>2-16-</u>	-83		

POUND WEIGHT WITH 30 INCH FREE FALL.

FIGURE No.

	LOG OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	ТА
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV.	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
	875.6		<u> </u>	,	(, 0,)	10 20 30 40 50
875_	FILL: Medium Brown SANDY CLAY with.	2				
	FILL: Mixed Soil and Rubbish.	·			·	
	-	o VISUA	L CLAS	SIFICATION	ONLY	
870	Very Stiff Brown SILTY CLAY with	2				
	Traces of Gravel and Silt.					
			0.55	3.0	700 5	
865~	TH	0 LS-1	865.5	14.6	120.5	15-25-31
	NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
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	TOTAL DEPTH: 10.0'					

TOTAL DEPTH:

10.01

BORING STARTED:

12-1-83

BORING COMPLETED:

12-1-83

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ______ FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH

O.D. SOIL SAMPLER 12 INCHES, USING 140

WITH 30 INCH FREE FALL.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 16

PROPOSED DEALERSHIP FACILITIES
TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

APPROVED BY: OMS DATE: 12-16-83

PROJECT NO. 56924 FIGURE NO. 14

LL	G OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	\ T	A			
CL	ASSIFICATIONS BY:			NATURAL						
	IEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	P!	ENE	TR	ATIC	ON 1
GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	F	₹ES	151	CANC	E
1	877.4	1	İ	(PERCENT)	(PCF)	10	0 2	20	30 .	40
	FILL: Medium Brown SANDY CLAY.	Ī		T	·	П	Π	Ť	ĬŤ	ΪĬ
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ПŤ	Stiff Drawn SANDY CLAY with Traces	4								
	Stiff Brown SANDY CLAY with Traces of Gravel and Sand.	i		!	1					
d	TOT Graves and Sand.	- {	842 4	10.3	133.6	14	17/6	الإز	4.	
	Compact Brown FINE TO MEDIUM SAND 371 with Traces of Gravel and Clay.		572.7			11	#	\perp	-	Ļ
1	mich fraces of draver and cray.	1	Į		[·		$ \cdot $			
].	NOTES:	1	1							
7	1. Boring advanced with 4-inch	İ	1	İ	1		$ \cdot $			
1	diameter solid-stem auger.	1		1						
1	2. Groundwater encountered 15 feet] .	1							
ľ	during drilling.	1			1					
1	Boring backfilled with excavated material.	1			1					
}	material.			1	!	П	$ \cdot $			
		1 :				i i				
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			1		1 .					
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I TOT	AL DEPTH: 35.01		·			ഥ.		ш		1.1
	ING STARTED: 12-1-83									
	ING COMPLETED: 12-1-83									٠
	ECTOR: K. Deddeh	AIE	VED .	TIGEO G	LINIT	_		_	_	
	bab (auto	IAE.	1 EM,	TISEO 8	T THINL	ن،	, L	- 1	IJ.	
	Coubin Duilling Co								_	
		<u> </u>	UG OF	TEST BOR	ING NUM	IBE	R	<u>_</u>	<u>L_</u>	_
	WATER LEVEL IN HOLE AT INDICATED	J	ppopos	ED DEALES	CUID EACT		T 1 F	٠.		
	BER OF HOURS AFTER COMPLETION OF BORING	1	PKOPOS	ED DEALER	SHIP FACI	L I	ııŁ	۵.		•
NUM	HOFEET OF CASING IN PLACE.	1	TEN	MILE & HA	GGERTY RO	١AD				
NUM TIW	•									
WIT	NETRATION RESISTANCE:		EADMI	MCTON, LITT	C MICUI	CAL	N			
иим WIT # <u>Р</u>	ENETRATION RESISTANCE: BER OF BLOWS REQUIRED TO DRIVE _2_INCH			NGTON HILI						
иим WIT # <u>Р</u>	NETRATION RESISTANCE:	APPROVE PROJECT	D BY:	NGTON HILI QMS		GAI		<u>8</u> 3		

	├	OG OF SUBSURFACE PROFILE	ļ	50	IL SAM	PLE DA	A T A
•		ASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION *
		OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	RESISTANCE
	G.			(1.221)	(PERCENT)	1	
	[]]]]	882.7	ļ	<u> </u>	T. 2.102.11.7	(10.7	} 10 20 30 40 5 0
	W	FILL: Medium Brown SANDY AND SILTY CLAY.					
880_	Щ	2.0					
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	ò.	RUBBISH FILL.					
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ELEVATION-FEET	0	,	1				
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850_	1/2		S-1.	849.7	_	_	6-9-17
-	A-	34.0		0.5.7			ĬĬĨĬĬ ₽ Ĵ ij
		Compact Medium Brown SAND with					
	11	Traces of Clay and Gravel. 36.	LS-1	846.7	7.4	122.1	20-24-27
845_		NOTES: 1. Boring advanced with 4-inch					
		diameter solid-stem auger.	1.	l [.]			
		Boring dry at completion.				• • •	
		3. Boring backfilled with excavated					
		material.	1				
]	ļ .			
			1	1			
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			1		Į		
	TOT	AL DEPTH: 36.0'					
		ING STARTED: 12-1-83					
	BCR	ING COMPLETED: 12-1-83					

BCRING COMPLETED: 12-1-83 K. Deddeh INSPECTOR: Bob Lemke CONTRACTOR: Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ____ FEET OF CASING IN PLACE.

*PENETRATION RESISTANCE:

*PENETRATION RESISTENCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH

12 INCH 140 O.D. SOIL SAMPLER 12 INCHES, USING_ POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS LOG OF TEST BORING NUMBER 18

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN APPROVED BY: DATE: 12-16-83 FIGURE No.

	1							
			OG OF SUBSURFACE PROFILE	ļ	so	IL SAM	PLE DA	TA
			ASSIFICATIONS BY:			NATURAL		
			IEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION *
		GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	RESISTANCE
		l	886.0			(PERCENT)	(PCF)	10 20 30 40 5
	885_	977	FILL: Medium Brown SANDY SILTY CLAY					
	000	M	with Traces of Organic Matter. 1.5			ł		
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	870	18	·	VISU	AL CLAS	SIFICATIO	N ONLY	
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ELEVATION-FEET		10			Ì			
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П		47			ŀ		i .	
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		10°				ļ	· '	
		1	Very Stiff Brown SANDY CLAY with				}	
	855	1.17	Traces of Gravel, Sand and Silt 92.0					
	•	9		1	052.0	5.1	124.3	29-50-45
		45.07	COARSE SAND with Traces of Grave	LS-1	853.0			
٠.			and Clay.					
	850		NOTES -			1		
	OOUL	1	NOTES: 1. Boring advanced with 4-inch	ļ				
			diameter solid-stem auger.		l	ļ		
		}	Boring dry at completion.					
			Boring backfilled with excavated		}	1		
	٠	1	material.	}		1		
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			AL DEPTH: 33.0'					
			12 1 93			•		•
			ING COMPLETED.	<u> </u>	/ED 3	TISEO E	- LI/615	O 1 TO
		· INSI	ector: K. Dedden	ı Nı⊫'	ren.	こうさし と		16.J. I. I. I. I. J.

INSPECTOR: K. Deddeh Bob Lemke Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING 0 FEET OF CASING IN PLACE.

*PENETRATION RESISTANCE: NUMBER OF BLOWS REQUIRED TO DRIVE ____ INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH 30 INCH FREE FALL.

ľ	NEYER,	TISEO	& H	INDO,	LTD

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 19

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN APPROVED BY: DATE: 12-16-83 PROJECT No.

1				- 4 		
	LOG OF SUBSURFACE PROFILE	ļ	so	IL SAMI	PLE DA	TA
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
	888.7				(, 0,)	10 20 30 40 50
	FILL: Medium Brown SANDY AND					
885_	Very Stiff to Hard Brown SILTY AND SANDY CLAY with Lenses of Brown Fine Sand.	LS-1	883.7	15.9	118.0	12-19-38
	41	23-1		10.3		16717777111+>
880_	NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
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		'	.,			
	TOTAL DEPTH: 5.0'					

BORING STARTED:

12-1-83

BORING COMPLETED:

12-1-83

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH ___ O __ FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH o.d. soil sampler 12 inches, using 140 POUND WEIGHT WITH 30_ INCH FREE FALL.

NEY	ER,	TISEO	윱	HINDO,	LTD.
	CC	ONSULTIN	GE	NGINEERS	

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN DATE: 12-16-83 APPROVED BY:

PROJECT No.

56924 FIGURE NO.

					···			
			OG OF SUBSURFACE PROFILE		s o	IL SAM	PLE DA	TA
•			NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION *
	• .	GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	RESISTANCE
		 	872.4	ļ <u> </u>	l 	(PERCENT)	(PCF) 0	10 20 30 40 50
	870_		FILL: Medium Brown SANDY AND SILTY CLAY with Traces of Gravel.				ļ	
		0						
		8						
	865_	0-		·				
		(0 th						
	860_	80		VISUA	L CLASS	IFICATION	ONLY	
		78	RUBBISH FILL.		-	:		
	855_	100						
t.	850	4				•		
ELEVATION-FEET	634	23) (25)						
ELEVAT	<u>Q</u> 845	\$ &						
	073	ĝ	·	S-1	843.9		-	11-11-12
		9 67					· .	
	840_	17.18						
		8	Very Compact Gray SAND with Trace of					
•	835		Gravel. 38.0	LS-1	834.4	13.1	127.2	8-22-31
	830_		NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Groundwater encountered at 25 feet during drilling. 3. Boring backfilled with excavated		·			
			material.					
			AL DEPTH 38.0'					
		BOR	ING STARTED: 11-30-83 ING COMPLETED: 11-30-83					·
		DRIL	PECTOR: K. Deddeh LLER: Bob Lemke TRACTOR: Corbin Drilling Co.		COI	TISEO E	ENGINEER	
	-	=	WATER LEVEL IN HOLE AT INDICATED					
		NUM WIT	BER OF HOURS AFTER COMPLETION OF BORING HOFEET OF CASING IN PLACE.			ED DEALER: MILE & HA		
		*P	ENETRATION RESISTANCE:			NGTON HILI		1
			BER OF BLOWS REQUIRED TO DRIVE 2 INCH., SOIL SAMPLER 12 INCHES, USING 140	APPROVE		0.00.8	·	2-16-83
:			ND WEIGHT WITH 30 INCH FREE FALL.	PROJECT	No. 5	6924	FIGURE N	

Риојест No. 56924

FIGURE No. 19

POUND WEIGHT WITH 30 INCH FREE FALL.

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	- 1	LO	G OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	4 T A	١			
		1	SSIFICATIONS BY:			NATURAL						
		N	EYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PE	NET	RAT	ION	*
		GRO	UND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	ì		STAN		Į
			879.9		<u> </u>	(PERCENT)	(PCF)	10	_20	30	40	50
			TOPSOIL: Dark Brown SANDY CLAY 10	.					$\cdot \cdot $			
			with Trace of Organic Matter.	1								.
		11	FILL: Medium Brown SANDY AND SILTY CLAY. 36									
		Н.	STETT CLAT:					111				
	875 _				·				1			.
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ELEVATION-FEET												
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	845.	157	•		}	}	j .					
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		6	Very Compact Gray MEDIUM SAND with		1		Ì	$\ \cdot\ $				M
		:::	Trace of Gravel.		839.9	15.5	117 0				H	Ŋ
i l	840.		40.0	LS-1	039.9	10.0	117.8	44	40	-4/	-+=	*
İ			NOTES:			İ		$ \cdot $				
!			1. Boring advanced with 4-inch				1 					
			diameter solid-stem auger.		ļ ·		<u>.</u>] [11
	835	1 1	Groundwater encountered at 24 feet during drilling.]							
İ	000.	1	3. Boring backfilled with excavated		1		İ			-11	-11	
			material.					$ \cdot \cdot $	11	11		11
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		1	40.0°	Ĺ	<u> </u>	<u> </u>	<u> </u>	Ш	Ш	Ш	Ш	
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•			RACTOR: Corbin Drilling Co.	LC		TEST BOR				22		\dashv
			VATER LEVEL IN HOLE AT INDICATED						<u>`-</u>		=	\dashv
:			SER OF HOURS AFTER COMPLETION OF BORING		PROPOS	ED DEALERS	SHIP FACI	LIT	IES	;		
		WITH	0 FEET OF CASING IN PLACE.		TEN	MILE & HAG	GERTY RO)AD				
:		*PE	NETRATION RESISTANCE:			NGTON HILL						
i			BER OF BLOWS REQUIRED TO DRIVE 2 INCH	APPROVE		OMO HILL						\dashv
į		O.D.	SOIL SAMPLER 12 INCHES, USING 140	PROJECT	`	<i>[][[8]</i> 6924		12-1				\dashv
		POUN	D WEIGHT WITH 30 INCH FREE FALL.	. NOIZCT	110. 5	0724	FIGURE N	10,		20		
48 TH 19 N 14												

	. !		OG OF SUBSURFACE PROFILE	····		IL SAM	PI E C					
			ASSIFICATIONS BY:			NATURAL			<u> </u>			\dashv
			EYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PE	1ET	RAT	rion	*
		GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY				NCE	-
		 	883.8 — TOPSOIL: Black CLAYEY SILT	ļ	· · · · · · · · · · · · · · · · · · ·	(PERCENT)	(PCF)	10	20	30	40	50
			Medium Brown CLAY with Traces of			. • •			$\ \ $			
		Щ	Sand and Silt. 15									
8	80.	9	·						$\ \ $			
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ELEVATION—FEET	60.	الات							$\ \ $			
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8	55.		Stiff Brown SILTY AND SANDY CLAY.								{	
				_		.					$ \cdot $	
		\mathcal{U}	ત્રા હ	S-1	852.8	16.2	118.2	PUS	HEC	1	+	H
•		v	Compact Gray MEDIUM SAND with	LS-1	850.8	8.1	129.0	8-2	1-2	,4		
8	50_		Trace of Gravel. 3330					H	П	7	П	
	•		NOTES:									
٠.			 Boring advanced with 4-inch diameter solid-stem auger. 									
			Groundwater encountered at 15		-							$ \ \ $
			feet during drilling. 3. Boring backfilled with excavated						Н			
			material.		ļ				11			
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		1	AL DEPTH: 33.0'	L	L	<u> </u>	l	Ш	П		لـلــ	Ш
	٠.	TOT	AL DEPTH: 33.0'									

TOTAL DEPTH: 33.0'
BORING STARTED: 11-30-83
BCRING COMPLETED: 11-30-83
INSPECTOR: K. Deddeh
BOB Lemke
CONTRACTOR: Corbin Drilling Co.

*PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH
O.D. SOIL SAMPLER 12 INCHES, USING 140
POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER, TISEO	SHINDO LTD
145 1511, 11050	C I III & DO, LID

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 23

PROPOSED DEALERSHIP FACILITIES

TEN MILE & HAGGERTY ROAD
FARMINGTON HILLS, MICHIGAN

 APPROVED BY:
 DATE:
 12-16-83

 PROJECT NO.
 56924
 FIGURE NO.
 21

	LOG OF SUBS	SURFACE PROFIL	-E		so	IL SAM	PLE DA	TA		
	CLASSIFICATIONS E NEYER, TIS GROUND SURFACE E	SEO & HINDO, LT	D.	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY	1	ETRATI	
	887.8		ļ			(PERCENT)	(PCF)	10.2	n 20	40 5
885_	TOPSOIL: DOWN THE TRACE	ark Brown SILTY CLAY e of Organic Matter. um Brown SANDY AND	1.5					10 2	20 30	40 5
	Gravel and	SILTY CLAY with Trac d Sand.	es 01	1	CLASS	IFICATION	ONLY			
880_		Brown SILTY CLAY with Gravel and Sand.								
	11		10.0	LS-1	877.8	12.9	126.9	12-16	, 18	
875_	diameter 2. Boring d	advanced with 4-inch r solid-stem auger. dry at completion. backfilled with excav	ated			-				
	material									
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	·									
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							·			
		70.01								
	TOTAL DEPTH:	10.0'								
	BORING STARTED:	12-1-83 12-1-83			-		•			
	BORING COMPLETED:	K. Deddeh		B.F	VER	TIOTA	C. 111511		1 ~~~	
	INSPECTOR: DRILLER:	Bob Lemke		NE		TISEO			LID).

Corbin Drilling Co. CONTRACTOR: WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH __ 0 __ FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE: NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH o. D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH __ 30 INCH FREE FALL.

LOG OF TEST BORING NUMBER 24

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN

DATE: 12-16-83 APPROVED BY: 56924 PROJECT NO. FIGURE NO.

LOG OF SUBSURFACE PROFILE		so	IL SAMI	PLE DA	TA
CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE NUMBER		NATURAL MOISTURE CONTENT (PERCENT)		PENETRATION RESISTANCE *
888.8 FILL: Medium Dark Brown SANDY AND SILTY CLAY with Traces of 1.0 Organic Matter.				. (7 10 20 30 40
Stiff to Very Stiff Brown SILTY CLAY with Traces of Gravel and Sand.50	LS-1	883.8	12.4	124.9	9-12-25
NOTES: 1. Boring advanced with 4-inch diameter solid-stem auger. 2. Boring dry at completion. 3. Boring backfilled with excavated material.					
		·			

BORING STARTED: 12-1-83
BORING COMPLETED: 12-1-83
INSPECTOR: K. Deddeh
Bob Lemke

DRILLER: CONTRACTOR:

Corbin Drilling Co.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH

O.D. SOIL SAMPLER 12 INCHES, USING 140

POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER,	TISEO	& H	INDO,	LTD.
C	ONSULTIN	G ENG	INEERS	

LOG OF TEST BORING NUMBER 25

PROPOSED DEALERSHIP FACILITIES

TEN MILE & HAGGERTY ROAD

FARMINGTON HILLS, MICHIGAN

APPROVED BY: DATE: 12-16-83

PROJECT NO. 56924 FIGURE NO. 23

							· · · · · · · · · · · · · · · · · · ·
	L	OG OF SUBSURFACE PROFILE		s o	IL SAM	PLE DA	ATA
	<u> </u>	ASSIFICATIONS BY:			NATURAL		
	- 1	NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION#
			NUMBER		!		ļ <u>!</u>
	GR	OUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT	DENSITY	RESISTANCE
	-	873.3		l 	(PERCENT)	(PCF)	10 20 30 40 50 ^d
		FILL: Medium Brown SANDY CLAY with Traces of Silt and Gravel.					
870) <u> </u>	35					
	0						
	8						
865	? \ \ \ \ \ \ \						
	15.						
	<,	RUBBISH FILL.	VISUA	L CLASS	IFICATION	ONLY	
860	#						
	<u>(৩</u>						
	برر در						
855	17						
	1.5						
F ,	ζ.	11.0					
ELEVATION-FEET) 						
AT10	FWA		S-1	848.7	-	-	7-9-12
E.E.	Ĝ	Medium Compact Brown FINE SAND.] `		
845	, - · · ·			042.7	14.0	101.7	
			LS-1	843.7	14.8	121.7	21-29-43
		NOTES: 1. Boring advanced with 4-inch		}			
840) -	diameter solid-stem auger. 2. Groundwater encountered at 26 feet					
		during drilling. 3. Boring backfilled with excavated	·				
		material. 4. Obstruction encountered at 5 feet.					
		boring offset.					
٠.				•			
						'	
					:		
			·			.	
	, 101	AL DEPTH: 30.0			•	•	
		ING STARTED: 11-30-83					
		ING COMPLETED: 11-30-83					
		V Daddah	A155	/ED =	TICEO C	LILAIR	O 170
			NE'	r EH,	113にし と	FIGURES	O, LTD.
	DRI	LLER: Bob Lemke		CO	SULTING	LNGINEE	イラ

BORING STARTED: 11-30-03
BORING COMPLETED: 11-30-83
INSPECTOR: K. Deddeh

DRILLER: Bob Lemke
CONTRACTOR: Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED
NUMBER OF HOURS AFTER COMPLETION OF BORING
WITH _____ FEET OF CASING IN PLACE.

*PENETRATION RESISTANCE:
NUMBER OF BLOWS REQUIRED TO DRIVE _2 INCH
O.D. SOIL SAMPLER ____ 12 INCHES, USING _____ 140
POUND WEIGHT WITH _____ 30 INCH FREE FALL.

NEYER, TISEO & HINDO, LTD.

LOG OF TEST BORING NUMBER 26

PROPOSED DEALERSHIP FACILITIES
TEN MILE & HAGGERTY ROAD

FARMI	NGTON HIL	LS, MICHIGAN	
APPROVED BY:	() Wis	DATE: 12-16-83	
PROJECT No.	56924	FIGURE No. 24	

		,												
	LOG OF SUBSURFACE PROFILE		s o	IL SAM	PLE DA	TA								
	CLASSIFICATIONS BY:	<u> </u>	T	NATURAL	[
	NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	MOISTURE	DRY	PENETRATION #								
		NUMBER			.1									
	GROUND SURFACE ELEVATION:	NOMBER	(FEET)	CONTENT	DENSITY	RESISTANCE								
ļ	879.2	<u> </u>	! 	(PERCENT)	(PCF)	10 20 30 40 50								
	FILL: Medium Brown SILTY AND				l 1									
	MI SANDY CLAY.	Ì		•	1									
	:11·													
875 _	[5]	'	ļ											
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870 _				1										
	51	VISU	AL CLAS	SIFICATIO	NONLY									
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865 _	a		i											
000 _	G .													
	I I RUBBISH FILL.				ļ									
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860 _	 &∵	1	· ·											
텑			0000			ا المارية								
		LS-1	858.2	-		22-135/5"								
t.	(a.)			1										
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ž 855_		İ	į .		j									
Ē 000 -	$ \mathcal{B} $	ļ												
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ELEVATION—FEET 8 - -	[·선]	İ		1										
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OAF			Í	İ]	111111N1								
845_	<u> 4</u> -	}				11111/								
	59.5	S-1	842.7	10.6	! -	17-18-9/1								
	Medium Compact Brown FINE SAND 365													
	with Traces of Clay and Gravel.		İ		i . I									
	NOTES:]	1 .	}									
840_	1. Boring advanced with 6-inch													
	diameter hollow-stem auger.				i . I									
	2. Groundwater encountered at 20	ŀ			!									
	feet during drilling.	Ì		1	! '									
	3. Boring backfilled with excavated	ļ												
	material.	1	ł	1										
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	TOTAL DEPTH: 36.5		.		·l									
•	BORING STARTED: 11-29-83													
	BORING COMPLETED: 11-29-83													
	INSPECTOR: K. Deddeh	NIE!	/ED "	rigen s	LIBID	O, LTD.								
	DRILLER: Bob Lemke	I ME		NSULTING										
	CONTRACTOR: Corbin Drilling Co.	1		TEST BOR										
	WATER LEVEL IN HOLE AT INDICATED	<u> </u>		. EST BUR	ING NUM	DER LI								
	NUMBER OF HOURS AFTER COMPLETION OF BORING	}	PROPOS	ED DEALERS	SHIP FACT	LITIES								
	^					j								
	WITHPEET OF CASING IN PLACE.	TEN MILE & HAGGERTY ROAD												
	*PENETRATION RESISTANCE:		FARMI	NGTON HILL	S, MICHI	GAN								
	NUMBER OF BLOWS REQUIRED TO DRIVE	APPROVE		Dals		2-16-83								
	o.D. Soil Sampler 12 INCHES, USING 140	PROJECT		6924	FIGURE N									
•	POUND WEIGHT WITH 30 INCH FREE FALL.		110. 3	U3L7	FIGURE N	o. 25								

			<u>4.</u> .											
		LOG OF SUBSURFACE PROFILE		so	IL SAM	PLE DA	ATA							
		CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD.	SAMPLE	ELEV.	NATURAL MOISTURE	DRY	PENETRATION							
	•	GROUND SURFACE ELEVATION:	NUMBER	(FEET)	CONTENT (PERCENT)	DENSITY (PCF)	RESISTANCE *							
		881.4		ļ		d	10 20 30 40 50							
	880.	FILL: Medium Brown SILTY AND SANDY CLAY. 3.0												
	075	J6												
	875_	4												
	870_	RUBBISH FILL.												
		ř.	VISU	AL CLAS	SIFICATION	ONLY								
	865_	© C		· ·										
Ĭ.		C												
'AT	860	FILL: Medium Black and Brown MIXED												
		CLAY AND SAND with Rubbish.												
	<u>इ</u>		S-1	856.4	44.2	-	5-8-10							
	855	Very Compact Brown FINE SAND. 28.0	S-2A S-2B	853.4	16.7 14.7	<u>-</u>	48-102							
··	85Q	NOTES: 1. Boring advanced with a 6-inch diameter hollow-stem auger. 2. Boring dry at completion. 3. Obstruction encountered at 26												
		feet, boring offset. 4. Boring backfilled with excavated material. TOTAL DEPTH: 28.0'												
	.*	BORING STARTED: 11-29-83 BORING COMPLETED: 11-29-83			. ·									
		INSPECTOR: K. Deddeh Bob Lemke	NE				DO, LTD.							
		CONTRACTOR: BOD LEMKE CONTRACTOR: Corbin Drilling Co.	LC		TEST BOR									
:		WATER LEVEL IN HOLE AT INDICATED		ppnpns	SED DEALER	SHIP FACT	UITIES							
		NUMBER OF HOURS AFTER COMPLETION OF BORING WITH FEET OF CASING IN PLACE.			MILE & HA		i							
	٠	* PENETRATION RESISTANCE:			MILE & NA NGTON HILL									
		NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH	Approx		() AND									
		o.d. soil sampler 12 inches, using 140 pound weight with 30 inch free fall.	PROJECT		56924	DATE: FIGURE N	12-16-83 o. 26							
		FOUND WEIGHT WITH INCH FREE FALL.			30324	. TOORE IN	20							

LO	G OF SUBSURFACE PROFILE		s o	IL SAM	PLE D	A T A	
	SSIFICATIONS BY:			NATURAL		, .	
	EYER, TISEO & HINDO, LTD.	SAMPLE		MOISTURE	DRY	l	* NOITA
	UND SURFACE ELEVATION:	NUMBER	V7	(PERCENT)	DENSITY	RESIS	30 40 5
880 TTT -	880,2	· · · ·	·		1 (1 01)	, 10 20 	30 40 5
111	FILL: Medium Brown SILTY CLAY with Little Sand and Pieces of Wood,			·			
الزاا	Brick, Metal and Miscellaneous	1	i .				
110	Debris. 4:0			·			1111
875 [Ø]		VISU	AL CLAS	SIFICATIO	NONLY		
7	RUBBISH FILL.						
B							
40							
870	10.0						
		S-1	868.2	24.8	101.7	6-5-3	
₩111 <u>}</u>	FILL: Mixed Soil and Rubbish.	3-1	000.2	24.0	101.7	11111	
865] [į į					
- 	16.0		863.2	No Rec	nverv	6-5-3	
X		S	003.2	. No Rec	overy .		╎ ┾┼┼
	FILL: Medium Black SILTY CLAY with				i		
860	Some Rubbish.	S-2	860.2	70.0	-	5 -5-3	
7//							
						\mathbb{N}	
ELEVATION-FEET 828		S-3	856.2	71.7		22-12-6	<u> </u>
호 유 F 855 -	•						
*				1			
	21.5						
0	Compact Brown MEDIUM SAND AND				}		
850	GRAVEL. <u>59.0</u>	LS-1	850.2	5.4		7-8-11	
	NOTES: 1. Boring advanced with 6-inch						
	diameter hollow-stem auger.'						
	Obstruction encountered at 4 and 5 depth hole relocated						
	twice.			· ·			
1 1	Groundwater encountered at 12 feet during drilling.						
	 Boring backfilled with excavated 						
	material.		i				
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							1 [] []
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	· · · · · · · · · · · · · · · · · · ·	L					
	L DEPTH: 30.0' NG STARTED: 11-29-83	-= ,					

11-29-83

BCRING COMPLETED:

K. Deddeh

INSPECTOR:

CONTRACTOR:

Bob Lemke Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING __FEET OF CASING IN PLACE.

*PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2 INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 POUND WEIGHT WITH 30 INCH FREE FALL.

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER 29

PROPOSED DEALERSHIP FACILITIES TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN

12-16-83 APPROVED BY: DATE: PROJECT No. FIGURE NO.

	LOG OF SUBSURFACE PROFILE		50	IL SAM	PLE DA	TA
	CLASSIFICATIONS BY: NEYER, TISEO & HINDO, LTD. GROUND SURFACE ELEVATION:	SAMPLE NUMBER	ELEV. (FEET)	NATURAL MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	PENETRATION RESISTANCE *
	878.7			,, _,,	1 (,,,,,	10 20 30 40 50
	FILL: Medium Brown SILTY CLAY with Little Sand, Brick, Glass, Metal and Debris.					
875	j-[[]					
	FILL: Mixed Soil and Rubbish.					
	FILL: Soft to Medium Brown SANDY CLAY with Pieces of Metal and Glas	VISUAL	CLASS	IFICATION	ONLY	
870	FILL: Mixed Soil and Rubbish.					
	12.5		-			
865	Medium Brown SILTY AND SANDY CLAY with Trace of Gravel.	S-1	863.0	18.5		3-5-3
1	NOTES:					
	1. Boring advanced with 6-inch					
860	diameter hollow-stem auger. 2. Boring dry at completion.					
	3. Boring backfilled with excavated material.					
•						
•						
		! *				
				·		
			·	,		
				·		

TOTAL DEPTH:

15.0'

BORING STARTED:

11-29-83

BORING COMPLETED:

11-29-83

INSPECTOR:

K. Deddeh

DRILLER:

Bob Lemke

CONTRACTOR:

Corbin Drilling Co.

WATER LEVEL IN HOLE AT INDICATED NUMBER OF HOURS AFTER COMPLETION OF BORING WITH __ 0 FEET OF CASING IN PLACE.

* PENETRATION RESISTANCE:

NUMBER OF BLOWS REQUIRED TO DRIVE 2_INCH O.D. SOIL SAMPLER 12 INCHES, USING 140 30

NEYER, TISEO & HINDO, LTD.

CONSULTING ENGINEERS

LOG OF TEST BORING NUMBER

PROPOSED DEALERSHIP FACILITIES

TEN MILE & HAGGERTY ROAD FARMINGTON HILLS, MICHIGAN

DATE: 12-16-83 APPROVED BY: PROJECT NO. 56924 FIGURE NO.

PROJE	CT NO.	56924					, TISE									sн	EET	1		OF	3	
	T	1		r		TABUL	ATION	OF	TES	T DA	TA											
									LUMETR		Par	RTICL	E SIZ	ze Di	STRI	BUTIC	ON		MITS		>	
TEST BORING OR TEST PIT NUMBER	SAMPLE NUMBER	DEPTH OF SAMPLE TIP	ELEVATION OF SAMPLE TIP	UNCONFINED COMPRESSIVE STRENGTH (PSF)	FAILURE STRAIN (PERCENT)	NATURAL WATER CONTENT (PERCENT OF DRY WEIGHT)	IN-PLACE DRY DENSITY (POUNDS PER CUBIC FOOT)	SOLIDS (PERCENT)	Liquids (PERCENT)	AIR (PERCENT)	COLLOIDS (PERCENT)	CLAY (PERCENT)	SILT (PERCENT)	FINE SAND (PERCENT)	MEDIUM SAND (PERCENT)	COARSE SAND (PERCENT)	GRAVEL (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)	APPARENT SPECIFIC GRAVITY	
1	LS-1	20.0	849.2	2650	20.0	17.8	114.0		·		_	-	-	-	-	-	-					
2	LS-1	10.0	859.0	11880	18.2	15.2	115.5				-	-	-		-	<u>-</u>	-					
4	LS-1	5.0	864.1	3900	9.1	16.7	114.3				-	-	-	-	-	-	-					
6	LS-1	8.0	866.2	24700	9.1	13.8	122.0				-	-	-	-	-	-	_					
. 7	LS-1	17.0	865.6	5270	20.0	14.1	117.9				-	-	-	-	-	-	-					
8	LS-1	20.0	858.4	9330	20.0	14.9	119.8				-	-	-	-	-	-	-					
` 9	LS-1	25.0	851.8	9360	20.0	13.9	124.2				-	-	-	-	-	-	-					
10	S-1	35.0	840.3	-	-	10.1	-	٠٠.	<u> </u>		-	-	-	_	-	-	-	<u> </u>				
10	LS-1	38.0	837.3	1080	17.3	18.4	114.4				-	-	-	-	-	-	-					
11	LS-1	5.0	870.6		11.8 20.0	17.1 16.8	112.7 118.0				-	-	-	-	-	-	-					
11	LS-2 LS-1	10.0 15.0	865.6 865.4		1.8	11.0	132.3	!	·		-	-	_		_	-	_				•	
13	LS-1	20.0	861.5		20.0	13.6	122.5				_	_	_	_	_	_	_		·			
13	LJ-1	20.0	001.3	0220																1		

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PROJE	CT NO.	5692	4	· · · · · · · · · · · · · · · · · · ·	١	NEYER	TISE	0 &	HIND	O', L 1	ГD.				<u> </u>	ѕн	EET	•	2	OF.	3	
						TABUL	ATION	OF	TES:	r DA	TA	· · · · ·						· -				
						VOLUMETRIC P			PAF	PARTICLE SIZE DISTRIBUTION					ON	ı	rerbi Mits		>			
TEST BORING OR TEST PIT NUMBER	SAMPLE NUMBER	DEPTH OF SAMPLE TIP	ELEVATION OF SAMPLE TIP	UNCONFINED COMPRESSIVE STRENGTH (PSF)	FAILURE STRAIN (PERCENT)	NATURAL WATER CONTENT (PERCENT OF DRY WEIGHT)	IN-PLACE DRY DENSITY (POUNDS PER CUBIC FOOT)	SOLIDS (PERCENT)	Liquids (PERCENT)	AIR (PERCENT)	COLLOIDS (PERCENT)	CLAY (PERCENT)	SILT (PERCENT)	FINE SAND (PERCENT)	MEDIUM SAND (PERCENT)	COARSE SAND (PERCENT)	GRAVEL (PERCENT)	LIQUIO LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)	APPARENT SPECIFIC GRAVITY	
14	LS-1	35.0	846.4	690	4.2	11.7	127.6				-	-	-	_	-	-	-					
15	S-1	37.0	843.8	-		7.4	-	·		·	<	9	->	. 7	16	14	54		ı			
16	LS-1	10.0	865.5	20480	18.2	14.6	120.5		-		-	•	-		-	-	-					
17	LS-1	35.0	842.4	-	-	10.3	133.6				-	19	· >	14	33	24	10		!			
18	LS-1	36.0	846.7	-	-	7.4	122.1					20	>	8	16	21	35					
19	LS-1	33.0	853.0	, -	-	5.1	124.3				<	19	\rightarrow	15	25	23	18					
20	LS-1	5.0	883.7	10070	10.9	15.9	118.0				-	- .	-	-	-	-	-					
21	LS-1	38.0	834.4	_	-	13.1	127.2				<	6	\Rightarrow	15	61	8	10					
22	LS-1	40.0	839.9		_	15.5	117.8				<	10	÷	47	40	2	1					
23	S-1	31.0	852.8	7640	8.2	16.2	118.2				-	-	-	-	-	-	-					
23	LS-1	33.0	850.8		_	8.1	129.0				*	19	\rightarrow	9	23	19	30					
24	LS-1	10.0	877.8	ļ	11.8	12.9	126.9			,	-	- '	-	-	-	-	-					
25	LS-1	5.0	883.8	14990	9.1	12.4	124.9				-		-	-	_	-	_				<u> </u>	<u> </u>

Figure 30

PROJE	CT NO.	56924		<u> </u>			ATION									sн	EET	3		OF.	3	}
							Vo	LUMETR	1C	PARTICLE SIZE DISTRI					витіс	ри	l l	TERBE	3	>-		
TEST BORING OR TEST PIT NUMBER	SAMPLE NUMBER	DEPTH OF SAMPLE TIP	ELEVATION OF SAMPLE TIP	UNCONFINED COMPRESSIVE STRENGTH (PSF)	FAILURE STRAIN (PERCENT)	NATURAL WATER CONTENT (PERCENT OF DRY WEIGHT)	IN-PLACE DRY DENSITY (POUNDS PER CUBIC FOOT)	SOLIDS (PERCENT)	Liquids (PERCENT)	AIR (PERCENT)	COLLOIDS (PERCENT)	CLAY (PERCENT)	SILT (PERCENT)	FINE SAND (PERCENT)	MEDIUM SAND (PERCENT)	COARSE SAND (PERCENT)	GRAVEL (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)	APPARENT SPECIFIC GRAVITY	
26	LS-1	30.0	843.7	_	. -	14.8	121.7			·		14	->	62	15	5	4					
27	S-1	36.5	842.7		_	10.6	-				(27	->	18	17	13	25					
28	S-1	25.0	856.4	-	-	44.2	_				-	- ,	-	-	-	-	-					
28	S-2A	28.0	853.2	-	-	16.7	_				—	53	->	22	8	7	10					
28	S-2B	28.0	853.2	- .	-	14.7	-				♦	35	\rightarrow	10	10	5	40					
29	S-1	12.0	868.2	160	4.2	24.8	101.7				—	11	->	10	29	23	27					
29	S-2	20.0	860.2	-	-	70.0	-				-		-	-	_	-	-					
29 29	S-3 LS-1	24.0 30.0	856.2 850.2	-	_	71.7	- -				_	_	_	-	-	_	-					
	1	ł	1		·	ļ.							_		_		_			1		
30	5-1	15.0	863.0	-	-	18.5	-				-	-	_	- .	_	_						
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